III. Please amend the claims as set forth below:

(Original) 1. An AC-to-DC converter comprising:

a transformer having a primary side for inputting an input signal and a secondary side for outputting an output signal;

a synchronous rectifier controller connected only to circuits on said secondary side for controlling a synchronous rectifier (SR) switch on said secondary side for generating said output signal;

said SR switch comprising a MOSFET transistor having a gate connected to said synchronous rectifier controller;

said synchronous rectifier controller further comprising a plurality of circuit elements for turning off said SR switch before a main switch of said transformer is turned on and for turning on said SR switch when said main switch of said transformer is turned off;

said synchronous rectifier controller comprising a means for generating a dead-time for turning off said SR switch with a controlled dead-time before said main switch of said transformer is turned on;

said synchronous rectifier controller comprising a pulse differentiator for resetting and restarting a ramp generator at a time when a main switch driving said transformer on;

said dead-time means further comprising a voltage-ramping means initiated by an output from said pulse differentiator for generating an up-ramping voltage;

said dead-time means further comprising a dead-time comparator for comparing said up-ramping voltage with a voltage generated by a charge integrator for generating a dead-time signal for turning off an output current driver.

said charge integrator comprising a circuit having a fixed time-constant of charge-integration independent of an output load of said AC-to-DC converter;

said synchronous rectifier controller further comprising an output current detector for enabling a positive current source for providing a fixed positive current to charge said charge integrator; and

said synchronous rectifier controller further comprising a switch for turning on and off said positive current source depending on an output of a secondary winding of said transformer.

(Previously Presented) 2. An AC-to-DC converter comprising:

a transformer having a primary side for inputting an input signal and a secondary side for outputting an output DC signal; ~~and~~

a synchronous rectifier controller connected only to circuits on said secondary side for controlling a synchronous rectifier (SR) switch on said secondary side for generating said DC output signal; and

said synchronous rectifier controller further comprising a plurality of circuit elements for turning off said SR switch before a main switch driving said transformer on and for turning on said SR switch when said main switch of said transformer is turned off wherein said synchronous rectifier controller further comprising a means for generating a dead-time for turning off said SR switch with a controlled dead-time before said main switch of said transformer is turned on.

(Original) 3. The AC-to-DC converter of claim 2 wherein:

said SR switch comprising a MOSFET transistor having a gate connected to said synchronous rectifier controller.

(Currently Amended) 4. The AC-to-DC converter of claim 2 wherein:

said synchronous rectifier controller further comprising a pulse width modulation means for generating a pulse width duty cycle based on a feedback signal of said ~~AS~~ AC-to-DC converter.

(Currently Amended) 5. The AC-to-DC converter of claim 4 wherein:

said pulse width modulation means connected to and controlling said SR switch.

(Currently Amended) 6. The AC-to-DC converter of claim 2 wherein:

said synchronous rectifier controller comprising a pulse differentiator for resetting and restarting the voltage ramp generator at a time when a main switch driving said transformer on.

(Currently Amended) 7. The AC-to-DC converter of claim 2 wherein:

said dead-time means further comprising a voltage-ramping means initiated by an output from said pulse differentiator for generating an up-ramping voltage; and

said dead-time means further comprising a dead-time comparator for comparing said up-ramping voltage with a voltage generated by a charge integrator for generating a dead-time signal for turning off an output current driver.

(Currently Amended) 8. The AC-to-DC converter of claim 7 wherein:

said charge integrator comprising a circuit having a fixed time-constant of charge-integration independent of an output load of said AC-to-DC converter.

(Currently Amended) 9. The AC-to-DC converter of claim 7 wherein:

said synchronous rectifier controller further comprising a positive current detector for enabling a positive current source for providing a constant positive current to charge said charge integrator; and

said synchronous rectifier controller further comprising a positive current switch for turning on and off said positive current source depending on an output of a secondary winding of said transformer.

(Original) 10. The AC-to-DC converter of claim 3 wherein:

said SR switch comprising a N-channel MOSFET transistor having a gate connected to said synchronous rectifier controller for turning off said MOSFET when a drain of said N-channel MOSFET transistor is driven high.

(Currently Amended) 11. The AC-to-DC converter of claim 2 wherein:

said synchronous rectifier controller comprising a voltage clamp waveform clipper connected to an output of a secondary winding of said transformer for providing a square waveform corresponding to said output of said secondary winding.

(Currently Amended)) 12. The AC-to-DC converter of claim 2 wherein:

said synchronous rectifier controller further comprising a current threshold detector connected to an output of a secondary winding of said transformer for sensing and turning off said SR switch when a current said output of said secondary winding is reduced below a threshold current.

(Cancelled) 13. A synchronous rectifier controller for an AC-to-DC converter wherein:

said synchronous rectifier controller connected only to circuits on a secondary winding of a transformer of said AC-to-DC converter and responding to a voltage of secondary winding for controlling a synchronous rectifier (SR) switch on said secondary side for generating a DC output signal.

(Cancelled) 14. The synchronous rectifier controller of claim 13 wherein:

said SR switch comprising a MOSFET transistor having a gate connected to said synchronous rectifier controller.

(Cancelled) 15. The synchronous rectifier controller of claim 14 wherein:

said SR switch comprising a N-channel MOSFET transistor having a gate connected to said synchronous rectifier controller for turning off said MOSFET when a drain of said N-channel MOSFET transistor is driven high.